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WEST EUROPE REPORT SCIENCE AND TECHNOLOGY

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BIOTECHNOLOGY

FRG: BIOTECHNOLOGY PROGRAMS, POLICY, STRATEGY

West Berlin DIE TAGESZEITUNG in German 5 Apr 83 p 9

[Article by Christa Knorr: "Biotechnology—Savior of Industrial Society ?"]

[Text] Take any reader interested in the subject of biotechnology. Chances are he will find something somewhere to surprise, amuse or puzzle him; in a word, to provide him with a bit of diversion. Although biotechnology has by now made its way into virtually all the media, its taking root in the FRG is not really an matter of public controversy among the lay scientific community.

Critics of biotechnology frequently stay where they came from—in the fields of biology and medicine.

At any rate, according to research and technology minister Riesenhuber, the biological sciences are presently going through a hectic development phase. In early March, he announced the establishment of a DM 10 million joint government and industry fund to spend on young research scientists and on tying basic research into industrial application.

This article is not concerned with a description of how biotechnology is to be implemented in the FRG. As official research policy and the interest of industry to apply it in practice; as scientists are trained and security policy is being debated; as all these issues come to a head, we now have biotechnology as the third major industrial development of the future coming at us, in addition to nuclear power and microelectronics.

So that we will all know what we are talking about when we refer to biotechnology, let me cite the 'official definition' as contained in the planning guidelines of the ministry for research and technology for the period from 1979 to 1983. Broadly speaking, biotechnology is designed to take advantage of chemical processes being performed by 'biological systems.' This includes microorganisms—above all azoobas—which produce chemical substances as part of their metabolic process which are of interest to the pharmaceutical industry as well as basic industry. By the use of gene technology to implant hereditary substances in such organisms, they can be stimulated to produce substances like insulin which they did not produce previously.

Biotechnology also makes use of cultures from individual cells of the higher plants and animals and of enzymes isolated from cells (the former being substances capable of triggering chemical processes without themselves undergoing any change). These productive characteristics peculiar to microorganisms, cell cultures and enzymes are to be put to use "in connection with technical processes and industrial production." "Particular importance is attached to the practical application of the results of basic biological research."

In speaking of biotechnology, the ministry is thus not referring to 'pure' basic research in the fields of biological medicine or biochemistry. In biotechnology, research and industrial application are intimately connected with one another. Gene technology, which is concerned with the partial transmission of hereditary data among various cells, is one aspect of biotechnology.

Who in the FRG is providing the funds for biotechnology research and what goals do they have in mind? As in other areas of research, three sources for funds are important: industry, government at the federal and Land level as well as the German Research Foundation or the Volkswagen Foundation.

Government research endowments are particularly important, since it is also concerned with defining the 'social goals' of research in biotechnology.

The Ministry for Research and Technology Plan

The ministry guidelines include the following priority projects (arranged in the order of funds available):

Biotechnology to reduce impact on the environment: This refers to biological means of fighting harmful insects so as to cut down on the use of present pesticides. Sexual lures are to be used to trap male or female insects living on useful plants so that the remaining animals are no longer able to propagate. Disease-causing viruses are to be used against specific insects. The development of specific weedkillers is to serve to reduce the broad-band effect of certain sprays. For another thing, microorganisms are to be bred which "can neutralize poisonous substances such as phenols in industrial waste or foul-smelling organic compounds originating in industrial plants."

Pharmaceutical basic and natural substances: Cell cultures are to substitute for agricultural production of pharmaceuticals such as medicinal herbs by assigning this task to industry. In this manner, "production will be independent of political and economic crises in those areas—some of them in faraway countries—where such plants are grown and the processing industry will be in a position to free itself from monopolistic pricing policies." In this connection, the ministry refers to pharmaceuticals used by diabetes sufferers and those with heart ailments.

Development and Fundamentals of Biotechnological Processes: This is concerned with the industrial applications of metabolic processes. The focus is on a number of bioreactors which require a metering and control technology that will provide the best possible environment for cell cultures and will guarantee the highest possible yield of substances. The biological processes also include gene technology which supplies the starting material for the bioreactor by isolating, purifying and transmitting the "desired" hereditary information.

Biotechnology to Satisfy the Need for Food: Biotechnologists are looking to individual cells to produce proteins for example in place of cultivated plants as used to be the case. "Biotechnology makes it possible to produce proteins for animal and human use independent of climatic and seasonal considerations," the ministry states. This applies to the Third World and to the industrialized nations. "The production of indigestible grains and pulses may be used to advantage for the production of low-calorie foodstuffs." All in all, then—"after research by the food and pharmaceutical industries has been successfully concluded new kinds of foods can be developed."

Extraction and Re-Processing of Raw Materials: Microorganisms are to digest plants in such a manner that "plant substances" can be transformed into manageable and easily transportable multi-purpose industrial raw materials." These are raw materials such as organic acids, proteins and alcohols on the order of methanol and ethanol which may be used as motor fuel. In addition, "microorganisms will be used in industrial processes to extract metals from low-grade ores."

Although the ministry guidelines read well and seem to be attacking the most urgent problems of our time such as hunger, efficiency in agriculture, environmental pollution and inexpensive medicines, some questions remain unanswered. Why, for example, should the excess substances contained in foodstuffs first be removed in industrial processing only to be subsequently replaced by materials extracted from cell cultures? As far as ingesting pure proteins is concerned, medical men have not yet been able to agree on the matter. This dietary enrichment could conceivably lead to serious metabolic problems.

And would it not be more sensible not to let "foul-smelling" wastes from productive processes escape into the atmosphere in the first place? Each of the research priorities could well be the subject of a debate of principles on which the ministry itself never touches. The 'great task' of the food and pharmaceutical industries, for example, to develop new kinds of foods for our benefit runs contrary to my own interests at least.

I would really like to make my own decision on whether to eat my potatoes and carbohydrates out of a tube. And why should farmland serve to grow plants that produce motor fuel while poor nutrition in the developing countries is cited as a problem practically in the same breath?

In this light, the goals of biotechnology could be described as an instance of grand technological strategy designed to wage war on symptoms.

Official Research Policy

Not only the ministry feels that the FRG is about to fall behind the United States and Japan in the field of biotechnology. Because of the high cost of basic research, industry is said not to have had the courage to make the necessary investments. In addition, the institutions of higher learning, by holding fast to traditional separation of scientific disciplines, missed the boat on interdisciplinary research. This type of research, however, is fundamental to converting research findings into industrial application. Last but not least, the fear of joint involvement on the part of both industry and the universities was so great in the past that there was no chance of collaborating in research and training of young scientists—about the lack of whom industry is complaining more and more.

These resistances could be overcome by providing research grants—which is another way of saying, by providing money. The funds available to German universities are tight and the high-technology, natural science fields are costly. The ministry's own budget for biotechnology in 1983 amounts to DM 63 million—14.5 percent more than last year. The biotechnology budget item itself carries the designation: research and technology in the service of health, nutrition and environment.

These funds go directly to the universities, the industrial laboratories, to the German Research Foundation and to other institutions such as the Fraunhofer Society, the Max Planck Society, the nuclear research facility at Juelich or the nuclear research center at Karlsruhe, if it is a matter of research pertinent to biotechnology.

Changes at Universities

Comparing new university catalogs with earlier ones, one finds that more courses are now being offered in microbiology, genetics and biochemistry. This change has taken place at the expense of other biology courses which either focus on society (such as ecology workshops or seminars in practical biology) or on manifestations of life without explaining these solely from a genetic point of view. The students are not all unhappy about this development, since the 'practical orientation' of the biotechnology courses holds the promise of secure employment. (Oddly enough, biotechnological processes are among those that are easiest to automate. In the United States, a computer is already on the market which is capable of performing the manual labor involved in isolating, purifying and controlling the tested hereditary information.)

The changes are taking place above all in those locations which are being turned into biotechnological research centers. New laboratories are being established; cooperation agreements between industry and the universities are being signed and existing facilities are being expanded by transferring

funds from other projects. Scientists are to be concentrated in four locations—in Heidelberg, Cologne, Berlin and Munich—to provide an opportunity for fruitful exchange. The participating institutions have already signed cooperation agreements with industrial firms such as Bayer, BASF and Schering.

Hierarchization of German Universities

As these research metropolises are being established, the chemical-pharmaceutical industry is launching an attempt to exert an influence both on curricula and actual learning conditions. Hoechst AG's board of directors member Weissermel has already called these research centers centers of the elite. He feels that the universities are not organized tightly enough to provide the scientists these research centers need. "Elite universities are the result of a hard process of natural selection under competitive conditions," he has said.

These competitive conditions are best created, he feels, by way of the funding lever. Exceptional performance, in other words, would be rewarded with promotions or higher pay. But once a university has reached the top, it may not simply rest on its laurels. "We should strive for a kind of athletic league of top universities where some would move up and others would be relegated to the next-lower group," Weissermel says. Many of those who placed their hopes in an education in biology in the aftermath of the ecology debate will soon have to think hard about the position they wish to take on these demands. The representatives of industry are not alone. The professors, who owe their chairs and their staffs to the biotechnology research boom, will be having a great deal of influence in determining future course structure—and institutions such as the German Research Foundation are supporting this lobby.

The various cooperation agreements between industry and the universities offer a guarantee for an unhindered flow of federal funds in support of industry-oriented basic research and of training of young scientists who can get along under the working conditions that prevail in big industry. I am inclined to doubt that this is the 'practice-oriented education' which many motivated students had in mind. And as for freedom of research, that does not seem to include truly independent scientific work because no research funds for that type of endeavor are being granted.

But it was not Minister Riesenhuber who thought up this research policy which creates wide-open possibilities for research and confidence-building measures for industry investments. Last fall, SPD Minister Buelow was also saying that government regulations on experiments in gene technology should be applied liberally.

Security Debate and Ethical Guidelines on Gene Research

To determine whether there is a real need to pass legislation on experiments in gene technology, the ministry issued guidelines in 1978 which were designed to protect against abuse in the manipulation of hereditary material in living organisms. But this protection does not relate to socio-political

dangers but merely defines the safety measures to be observed in working with experimental organisms in gene technology laboratories. Until now, industry submitted to voluntary control by the Central Commission for Biological Safety, since present guidelines are not legally binding.

In its final report for 1981, the commission stated that laboratory safety risks are largely controllable and that there is therefore no need for legislation. But critics say that there is as yet no way to control the conversion of experiments into industrial use. Furthermore they point out that the safety debate has thus far concentrated on scientific problems and not on political dangers.

The commission does have problems with the application of gene technology processes to human beings. Two instances are described in which human hereditary substances were directly interfered with. Although such a procedure is admissible under existing guidelines "ethical problems may arise which call for the establishment of fundamental guidelines."

But who is to establish them ? After all, there is no public debate going on in the FRG on biotechnology and gene technology at this time and sensationalism in the media does little to inform the general public.

And so the ethical guidelines proceed on their merry bureaucratic way as always. In 1982, the commission heard testimony from biophysicians who are not involved in the application of gene technology to human beings. This spring, the commission will submit a report to Minister Riesenhuber on the present state of the real possibilities for medical application of the technology as well as the concomitant problems. No decision has yet been made on whether the minister will then schedule a hearing and whether it will be open to the public, if he does. The very least we should do is to keep our eyes on the desks of those in authority so that they will not include data on our genetic state of health on our new counterfeit-proof identity papers along with all the other information.

9478

CSO: 3698/301

ELECTRONICS

BRIEFS

EUROTECHNIQUE TRANSFER FINAL--Effective March 2, one of France's leading manufacturers of components became a 100 percent subsidiary of THOMSON-CSP, according to an announcement made by the nationalized group. This transfer, approved by public authorities, was the result of an agreement protocol signed at the end of January between THOMSON and the owners of EUROTECHNIQUE, NATIONAL SEMICONDUCTOR CORPORATION [NSC] (49 percent) and SAINT GOBAIN (51 percent). This official step marks a new phase in the government components plan, now based on two industrial poles, MATRA and THOMSON. The EUROTECHNIQUE transfer was paid to the American group with the symbolic franc, because the company, created in 1979, is not yet showing a profit. On the other hand, several million dollars were recently paid to renew licenses. Moreover, aid agreements were signed between NSC and THOMSON to renew NSC's technological aid to EUROTECHNIQUE. Mr Jacques NOELS, director of THOMSON CSF's semi-conductor activity, was elected president of the company by EUROTECHNIQUE's new board of directors. [Text] [Paris AFP SCIENCES in French 3 Mar 83 p 3] 12204

CSO: 3698/252

RESEARCHERS PRODUCE HYDROGEN FROM WATER WITH SOLAR ENERGY

Paris AFP SCIENCES in French 24 March 82 pp 30-31

[Article: "Towards Hydrogen Production by Solar Energy"]

[Text] According to three researchers at the Laboratory of Chemical Engineering Sciences at Nancy (CNRS [National Center for Scientific Research]), hydrogen, the fuel of the future, could be produced by using solar rays to split the water molecule directly by thermolysis.

Of course, the process that they have developed and tested both at Nancy and the solar oven at Odeillo (Pyrenees) does not yet allow industrialized production to be assured, but it is very promising. Its efficiency has already been improved by a factor of two in 2 years.

It is doubly advantageous. It uses a cheap raw material, water, and a form of energy not subjected to inflation and fluctuations of the dollar, the sun. In addition, it does not pollute.

Jacques Lede, Jean-Francois Lapique and Jacques Villiermaux, "inventors" of this process, are careful not to dream. One cannot bank on the economical extraction of hydrogen directly from water before the year 2000 or 2050.

Working in the framework of the PIRSEM [Interdisciplinary Program for Research on Energy and Raw Material Sciences], the Nancy researchers began by producing a gas with good heating power by gasification of wood [as published] by flash pyrolysis. They thought about using the same principle for the manufacture of hydrogen instead of classical electrolysis. By heating water to above 2000°C, the water molecule can be separated into its two components, as in electrolysis. This is thermolysis.

There is a double difficulty, however. Extremely high temperatures must be reached for the dissociation to succeed, but all of the water molecules placed in this situation, at atmospheric pressure, are not dissociated. Another problem: if the hydrogen is not cooled very quickly, it recombines with the oxygen immediately and forms into water again.

The CNRS researchers have gotten around all of these difficulties. First, they thought about using solar rays concentrated on an oven: that of Odeillo.

Temperatures of 2,700°C and higher can be obtained there. They developed a system for immediate and very abrupt cooling of hydrogen obtained by cold turbulent secondary gas jets. The first satisfactory laboratory tests at Nancy were confirmed by others done in the Pyrenees with a 2 m diameter parabolic mirror.

Up until now, the process allows for the production of 1.7 liters of hydrogen per hour, recovery of 90 percent of the hydrogen produced and preservation at ambient temperature.

Reported in CNRS INFO, a publication of the National Center for Scientific Research, this work is part of basic research and its application can only be envisaged in the long term. Nonetheless, it shows that hydrogen production by thermolysis by direct use of solar energy is possible.

9969

CSO: 3698/271

INDUSTRIAL TECHNOLOGY

DOCUMENT LISTS EEC STEEL INDUSTRY OBJECTIVES FOR 1985

Paris AUTO-INDUSTRIES in French 25 Mar 83 pp 3-4

[Text] Brussels, 24 March (AFP [French Press Agency])--The surplus production capacities of the European steel industry in terms of finished products will be 50 million tons in 1985. An information paper prepared under Mr Etienne Davignon, vice chairman of the committee that handles industrial questions called this kind of excess capacity "unsustainable."

The document, submitted to interested parties, suggests the outline of a profound reorganization to a great extent inspired by the Japanese example. "The essence of the Japanese advantage," the committee notes, "does not derive from the price of the factors but from their productivity."

The document estimates that the maximum output possible for 1985 for all of the enterprises of the EEC is around 151.3 million tons whereas the consumption of that same year should only be 101.1 million tons.

The committee estimates that the "major reorganization efforts will have to be made by the least profitable enterprises, regardless of whether or not they are subsidized."

The "prescription" in this case, the document asserts, resides in the concentration on the best tools, cooperation between European enterprises, and an aggressive policy. "The major effort," the committee estimates, "will have to be made by the enterprises with the most obsolete plants, those that are recording the highest losses, those that benefit most from heavy subsidies, and those that are faced with shaky orders [markets]. The document does not conceal the need for coordinated action and in this respect underscores the "results of crisis measures adopted by the European Commission."

It lists the harmful consequences of a defensive policy which helped support sector inefficiencies and asserts that "as illustrated by the success of the Japanese steel industry, aggressive strategies succeed within a healthy industry." For aggressive strategy, vice chairman Davignon proposes an effort promoting competitiveness and an increase in the impact of Community policies.

Regarding the first point, he demanded an appropriate combination of quality and price with increased cooperation with the consumers, better production

management to reduce the average gap of 15-20 percent in terms of costs per ton of steel between Japan and Europe.

Finally he stressed "the fundamental importance" of the availability and of the cost of financial resources along with an increase in self financing.

In the area of Community coordination, the document considers it necessary to boost support for conversion, with the social sector becoming a specific component of this policy. Specific transactions by FEDER (European Regional Economic Development Fund) must be developed. He proposes new impetus for research activities, the rigorous pursuit of the ECSC financing policy, and better integration of steel products export promotion. The document concludes by asserting that the overall chances of the steel industry sector in the final analysis depend on the success of a Community industrial strategy and an energetic investment-revival policy.

The statistics forecasted in the document are based on average GDP growth in the Community estimated at 1.9 percent, an estimate which the committee may consider to be "too optimistic."

5058

CSO: 3698/262

BRIEFS

FINSIDER PRESENTS AUSTERITY PLAN TO UNIONS--Rome, 21 March (AFP [French Press Agency]). An austerity plan, aimed at reducing jobs in the Italian public steel industry by some 10,000 was submitted to the labor unions on 18 March which immediately criticized it severely. The plan, submitted by the management of the Finsider [Iron and Steel Finance Corporation] steel company (IRI [Industrial Reconstruction Institute], a public group), proposed cutting steel output to 23 million tons in 1985, as against the initial estimates of 26.5 million tons. Steel output was to be cut 22 percent between February 1982 and the last month, we recall. Finsider reduced its investment program by 300 billion lire (Fr 1.5 billion), reserving the right however to use 3,975 billion lire (close to Fr 20 billion) over the next 3 years to permit the reorganization of production units that will be obsolescent (Genoa-Conigliano, and above all Naples-Bagnoli). The manpower reductions (which involve 15,905 jobs between now and 1987) will be carried out through increased early retirements and mobility within the IRI Group. The natural turnover at Finsider is about 3 percent of the jobs per year. The moment they were informed of the plan, the labor unions termed it "excessively recessive" and attacked the sacrifices demanded "once again" of the workers. Here is a detailed breakdown of measures proposed on 18 March by the IRI-Finsider management to the labor unions: 1983: elimination of 3,944 jobs; 1984: -7,417 (total 1983 + 1984); 1985: -10,878 (total); 1986: -13,857; 1987: -15,907 (total). Results and output estimates: 1981: 21.3 million tons; 1982: 20 million tons; 1983: same; 1984: 22 or 23 million tons; 1985: 23 million tons. [Text] [Paris AUTO-INDUSTRIES in French 22 Mar 83 pp 3-4] 5058

FINSIDER LOSSES DOWN--Rome, 23 March (AFP [French Press Agency]). "Finsider" on 23 March announced a definite improvement in its 1982 results; the deficit for the fiscal year comes to 1,450 billion lire (more than Fr 7 billion), as against 2,130 million lire (Fr 10.5 billion) the year before. The net business volume rose from 8,500 billion lire (Fr 42 billion) in 1981 to more than 10,000 billion lire (Fr 50 billion) in 1982, in other words, an increase of about 18 percent, a little more than the rate of inflation (16.3 percent). Out of this total, 3,400 billion lire (Fr 17 billion) were earned abroad. [Text] [Paris AUTO-INDUSTRIES in French 24 March 83 p 6] 5058

BSW IS KORF PARENT COMPANY--Kehl (Baden-Wuerttemberg), 23 March (AFP [French Press Agency]). BSW (Badische Stahlwerke), which produces steel cables, is becoming the "parent company" of the "Korf" group which was recently placed in receivership, Mr Horst Weitzmann, BSW president at Kehl, announced on 23 March. The new group will consist of seven firms, including three new ones emerging from the bankrupt "Korf" group. It will have 2,000 employees and should achieve a turnover of DM 900 million, according to BSW estimates. The State of Baden-Wuerttemberg is guaranteeing the formation of the new group with some DM 40 million, it was added. The group around the "BSW parent company" will use about 600,000 tons of steel per year, of which BSW itself will supply 75 percent. [Text] [Paris AUTO-INDUSTRIES in French 24 Mar 83 p 6] 5058

PRESSING RATE TRIPLED--Schweizerische Aluminium AG, Chippis/Zuerich, Switzerland. Allegedly the most advanced indirect press in the world has been started in operation at the Swiss Alusuisse Company. This press is supposed to be capable of operating at a tripled pressing speed with a more uniform metal structure of the pressing rope when processing hard alloys. Alusuisse mentions that one of the advantages of the new press is chiefly the possibility of working longer studs at lower press temperatures. The assertion is that smaller wall thicknesses can be obtained through greater deformation and better concentricity. Finally, Alusuisse anticipates considerable energy savings with the new indirect press. The facility was built by the Schloemann-Siemag Company, utilizing Alusuisse's production know-how. The new press, with a pressing force of 3,500 tons, is to replace 3 obsolete direct presses with 1,000, 2,000 and 3,000 tons, respectively which are located in the Walis plant of the company. Contrary to the direct press method, the ram of the press is stationary and hollow. It carries the matrix at its end. The preheated press stud is presumably pressed by a locking piece against the matrix, the metal is pressed through the opening in it and the evolving profile emerges through the cavity in the ram. Since, as indicated by Alusuisse, no friction occurs in this process between the metal to be pressed and the inside walls of the recipient, the necessary pressure can be cut by up to 70 percent and the power requirement by 25 to 30 percent compared with direct pressing, which makes for equivalent energy savings. [pet.] [Text] [Frankfurt/Main FRANKFURTER ZEITUNG/BLICK DURCH DIE WIRTSCHAFT in German 28 Feb 83 p 7] 9245

CSO: 3698/263

SCIENCE POLICY

NEW FRENCH 'MINISTER OF INDUSTRY AND RESEARCH' APPOINTED

Paris AFP SCIENCES in French 24 Mar 83 pp 1-3

[Article: "Laurent Fabius Replaces Chevenement at [Ministry of] Research and Industry"]

[Text] In the third Mauroy cabinet, formed 22 March, an important change took place at the head of the Ministry of Research and Industry with the naming of Laurent Fabius, former minister of the Budget, to the position held by Jean-Pierre Chevenement.

A noteworthy switch took place in naming the new ministry which is becoming that of Industry and Research. Speaking on 23 March on TFI [television station], Fabius indicated that this could be interpreted as the government desire to rebalance foreign trade, where his department will be "at the top of the list."

As could be expected, in his first interview the new minister spoke basically about industry. Alluding indirectly to Francois Mitterand's statements at the cabinet meeting on 2 February condemning the "finicky bureaucracy" and that "old tendency that led the previous governments to practice a form of government control that is incompatible with French economic development," he declared that he "will respect the management autonomy of the nationalized firms," and that it is up to those in charge of the latter to "make a go of them."

It was an obvious disagreement between the president of the republic and Chevenement on the management of the industrial policy that led to the departure of the former minister who, moreover, had offered to resign as of 2 February.

As soon as he was named to the Ministry of Research, Chevenement did not hide the fact that he was dreaming of a super ministry that would combine not only research and industry but foreign trade as well, like the Japanese MITI. They linked up with industry research in July 1982.

Chevenement was putting a lot of hope in new technologies while, at the same time, emphasizing that traditional industry would not be abandoned, but he refused to be in charge of all the "lame ducks." He felt he could spur development in industrial research through the power that he had over nationalized groups.

In research, most of the scientific "actors" themselves characterize as "positive on the whole" the policy carried out by Chevenement during his 22 months as head of the Ministry of Research and Technology which formed after the Left came to power.

Of course, it is emphasized, the results attained did not always correspond to the stated objectives. The actual budgets devoted to research were often lower than expected, certain reforms, specifically the one concerning the status of researchers, have been slower than expected. But, basically, research has become one of the unquestionable government priorities that has been translated into reality.

This priority of research in the life of the nation had, moreover, been set by Francois Mitterrand during the presidential campaign. With the impetus of Chevenement, who is no longer part of the cabinet, the research world really moved, was even upended, according to some, particularly at the top of the large research organizations.

Chevenement's research policy is illustrated by changes in budgets, priorities, organizations and institutions, incentives, and regionalization.

The new minister of Industry and Research is a special advisor to Francois Mitterrand, his confidant and one of the spokesmen of the Socialist Party of which he had been the national press secretary since 1979, 5 years after joining the party.

Laurent Fabius, born 20 August, 1946 in Paris, is the son of an antique dealer. An alumnus of the Ecole Normale Supérieure and of ENA [National School of Administration], he began his career as an auditor at the Council of State where he became friendly with Georges Dayan, an intimate friend of Francois Mitterrand who died in 1979.

Economic counselor to the first secretary of the PS since 1975, a year later he became director of Mitterrand's cabinet. His capacity to assimilate files led him, at his election in 1978 as deputy from Seine Maritime, to head the economic sector left vacant by the death of Andre Boullouche. The expert became a politician.

During the discussion of the budget at the National Assembly in October 1978, Michel Rocard was expected to speak for the PS. Laurent Fabius went to the podium and charmed the legislators with the clarity of his discussion.

Named budget minister in May 1981, he attempted to implement a "peaceful tax reform," while purposely staying out of the public debates on the economic controversies within the majority party.

Newsmen noted the unobtrusive arrival of the former cabinet head on 20 March 1982 at Elysee at the time which monetary negotiations in Brussels between the French and Germans were hung up.

Therefore, there should be good vibes between the chief of state and the new minister of Industry, which was not the case with Chevenement. Observers of industrial affairs were only half surprised on 22 March at Chevenement's statement that he had tendered his resignation to the chief of state on 2 February.

Very pragmatic in his approach to economics, Fabius did not want to increase taxes. The level of tax pressure is close to the threshold beyond which "the dynamism of a society is destroyed," he declared last fall at the time of the 1983 budget vote.

An advocate of austerity but "without exaggeration," the youngest member of the second Mauroy cabinet clearly stated that he was opposed to any protectionism that can only lead, in his opinion, to a drop in productivity and a decrease in possibilities for future jobs."

To confirm his international image as a government man, Laurent Fabius made a lecture tour in the United States from 14 to 18 February. "France," he declared on 19 February at Stanford, one of the best American universities, "will be in the forefront of European nations in computer research" in 1985. This is a challenge that the new minister of Industry owes it to himself to take up.

9969

CSO: 3698/271

SCIENCE POLICY

FRENCH RENEW EFFORTS AT LAB-TO-INDUSTRY TECHNOLOGY TRANSFER

Paris LES ECHOS in French 3 Mar 83 p 3

[Article by Jacqueline Mattel]

[Text] This new evaluation mission that the government has assigned to CNRS [National Center for Scientific Research] has two facets: to improve the transfer of research results to industry, and to integrate the technical problems encountered by the firms in defining CNRS's science policy.

The second aspect is the newest. Is SNEA leaning toward automated oil extraction? If so, it is time to improve the physical chemistry of surfaces. Is the Saint-Gobain company looking for new glass products? If so, this is the opportunity to reactivate basic research on glass.

CNRS thus wants to hear what firms have to say via executive agreements. The first was signed with EdF and defined the areas of cooperation as well as the modes of personnel exchanges and of defining industrial property. The objective? "To sign agreements with some 20 firms, representative of 5 or 6 main industrial sectors by the end of the year," Pierre Papon stated. Without ostracism.

Technical Transfer Centers

CNRS signed such an agreement in 1976 with Rhone-Poulenc, which is now on the road to recovery. At the time, it was disputed by other French chemists, because it placed Rhone-Poulenc in a privileged position.

As of now, the philosophy is different: it is the "bolts" philosophy which underlies industrial policy. To cover a few large sectors by establishing links with leading firms. In the program: chemistry, electronics, mechanics, cars, metallurgy and perhaps--Pierre Paon is thinking about this--agro-food products, a sector in which France lacks laboratories.

Executive agreements will also be concluded with public enterprises such as EdF or SNCF. Or with research institutions: CNEXO, INSERM, INRA, ORSTOM and possibly AEC. In anticipation of their agreement, CNEXO and CNRS have already decided to install a joint aquaculture laboratory near La Rochelle.

Together with CEA, CNRS would like to expand the existing cooperation to certain aspects of the atom (particle accelerators) in the nuclear area: reactor safety, storage of nuclear wastes.

The second and more traditional aspect of CNRS/industry relations is the transfer of techniques. Jean-Jacques Duby is planning on expanding into this area by creating technical transfer centers (in the form of public interest groups) in booming areas (materials, biotechnologies, informatics) as well as in sectors having a hard time recovering (scientific instrumentation in above all).

He also plans to set up subsidiaries, since his new status enables CNRS to have holdings. At the next board of directors' meeting he will present a robotic subsidiary project for the Midi-Pyrenees region, in cooperation with ONERA [National Office for Space Study and Research], manufacturers, and local bankers.

CNRS's information-transfer concept extends to a third aspect: migration studies for transport, epidemiology for health. An inter-disciplinary research program will be established with the theme: "technology, jobs, life style."

Lofty ambitions, therefore, but the means still remain to be defined.

For the present, the evaluation office represents only 1 percent of CNRS's budget (which has reached 7 billion francs). But according to Jean-Jacques Duby, it "serves as a catalyst to other offices, with a tripling to quintupling effect." An envelope obviously promising to grow. If budgetary cut-backs (Pierre Papon cautiously authorized his offices to invest only 60 percent on the credits) is not too heavy of a burden on CNRS.

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TRANSPORTATION

BAD TIMES FOR AERONAUTICAL INDUSTRY; GENERAL MITTERRAND TO RETIRE

Paris AFP SCIENCES in French 17 Mar 83 p 7

/Excerpt/ Prospects for the French aeronautics industry for the foreseeable future are "worrisome," so stated General Jacques Mitterrand, chairman of the French aeronautics and space industries group (GIFAS) and of Aerospatial in Paris on 14 March. He predicted to the "Friends of the French Republic" Association that French aeronautics will experience, despite hard work, a certain number of structural handicaps: productivity below American industry's because of the "lack of liberty left to contractors and the accumulation of burdens on the companies."

He pointed out that the progress of military programs should be affected only a few percent following the government's decision to pledge only 80 percent of the credits before 1 November 1983.

Two names are circulating as a replacement for General Mitterrand, who will retire at the end of May 1983, in the chairmanship of l'Aerospatiale: that of the present delegate general for armaments, Mr Jean Martre, and that of General Bernard Capillon, present chief of staff of the Air Force.

General Mitterrand's term in the chairmanship of GIFAS ends in July; the names of the chairman of SEP, Mr Pierre Soufflet, and of Mr Jacques Benichou, chairman of SNECMA, have been proposed.

In 1982 French aeronautics (116,000 people directly and 230,000 indirectly) earned a turnover of 50 billion francs of which more than 60 percent were in exports.

9436

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TRANSPORTATION

AI HEAD SPEAKS ON IMPLICATIONS OF MULTINATIONAL STRUCTURE

Duesseldorf WIRTSCHAFTSWOCHE in German 18 Mar 8 pp 59-60

/Interview with Bernard Lathiere, president of the European consortium Airbus Industry, by WIRTSCHAFTSWOCHE editor Christian Deysson; time and place not given

/Text With Airbus, Europe can show substantial success in cooperation. Today, the aeronautical concern is the market leader in large aircraft and is the world's largest aircraft producer. In an interview with WIRTSCHAFTSWOCHE editor Christian Deysson, the president of the European consortium Airbus Industry, Bernard Lathiere, explained the organizational conditions of the project.

/Question In the past, border-crossing cooperation in the aviation industry has generally failed. What is the reason for the success of Airbus?

/Answer We were successful mainly because the Airbus program, in contrast to the "Concorde" project, has a quasi supranational character. When the "Concorde" finally flew, it had been delayed 7 years and cost 14 times as much as originally planned. One reason for that was that in the "Concorde" program, every decision had to be made unanimously by a four-member committee in which national proportion was observed precisely. But the result was that often nothing at all was decided and the program got further and further behind. This is also the most important reason for the exorbitant price increases in the "Concorde" project.

/Question And does all that work better at Airbus Industry?

/Answer We have a central organization in the form of the holding company Airbus Industry. It has overall responsibility for the program, for determining the rates of production and for the large technical decisions, the selection of technical equipment, for example. Further, Airbus Industry is responsible for sales, customer service and all customer relations. The Airbus partners--that is, the German Airbus GmbH for Messerschmitt-Boelkow-Blohm in Germany, Snias in France and British Aerospace in Great Britain--are

proportionally represented in our board of directors. It is there that they determine long-term enterprise strategy, which, in turn, is at the recommendation of the executive body, that is, the management of Airbus Industry.

/Question/ Is, then, a supranational executive body the prerequisite for the success of any border-crossing European industry cooperation?

/Answer/ In any case, it needs to have a responsible chief. But responsibility means two things: on the one hand, that the manager can make his decisions without being hindered by a "parliament" of stockholder representatives, and on the other hand, that the chief manager is fully responsible for wrong decisions. It is important, then, that one must be able to dismiss him as any chief executive officer in a normal national enterprise.

/Question/ Can the board of directors fire you without further ado?

/Answer/ Of course. An additional important advantage in our enterprise structure is that I can choose and hire my direct staff myself without being influenced by the partner companies. Anyone wanting to put together a multinational team must choose his colleagues according to their competence, not their passport.

/Question/ How is that in practice in the company?

/Answer/ In the 8 years since I have been with Airbus Industry, for sales director I had a Dutchman, an American and now finally a Frenchman, for the very simple reason that the successive holders of the post were in each case the most qualified people.

/Question/ Then there is no national proportion?

/Answer/ No. Only for the board of directors are the seats distributed according to the number of capital shares. There are no nationality quotas for filling the directors positions. So, for example, there is currently not a single Englishman among the seven members of management, even though the British now have a 20-percent interest in the program.

/Question/ Does the multinational structure of a European enterprise lead to problems in everyday life?

/Answer/ Naturally, working with the partner firms is not without difficulties. There often are problems and the people speak their mind. But that is refreshing and it helps. Above all, however, the partners have tried to organize Airbus Industry so that the enterprise can react just as quickly in the marketplace as the competitors. If Boeing decides today to grant a 20-percent rebate to an especially important contract, then we must follow suit without much hesitation.

/Question/ Can you really do that?

/Answer/ Yes, and we have demonstrated it many times.

/Question/ Nevertheless, a competitor such as Boeing can make its decisions alone. You must first check with your partners and the involved governments.

/Answer/ That depends on the nature of the decision. Naturally, when it involves strategic decisions like the start of a new program such as the smaller A-310 airbus, for example, then we have to get the approval of the three governments. But since sales were good for the A-300 airbus, we received the government approvals for the A-310 program very quickly, within a few weeks.

/Question/ Does the constant consultation with the partner firms and governments not represent a handicap for business policy? The vacillation about the A-320 shows this clearly.

/Answer/ The problem is in fact in eliminating certain inertia factors involved in our multinational system. The fact that we work together with various governments and cooperate with French, German and English banks, whose methods of financing vary from country to country, requires a certain amount of coordination. We have to devote a not insignificant part of our working time to these coordination tasks, time that we would naturally rather use in our competition with Boeing and McDonnell Douglas. But the whole trick to international cooperation involves finding the fastest and most effective work system, as well as keeping to a minimum losses due to friction.

/Question/ How did the coexistence of state firms and private enterprises work out within the organization of Airbus Industry? Was there no friction?

/Answer/ Not at all. It makes no difference to me whether I work together with my partners in the private sector or with my state partners. Take the example of our British partner, which initially was the private company Hawker-Siddeley, then was nationalized to British Aerospace and now finally is once again half private.

/Question/ Where in your scope of work would you like to see more European industry policy? What can the EEC do?

/Answer/ What we Europeans could use is a more effective financing instrument for foreign trade. To put through financing, our competitor Boeing has a single negotiating partner, the American foreign trade credit institution Export-Import Bank. We, on the other hand, have to deal with the three counterparts to this Export-Import Bank in France, Germany and England. The three have to agree, which is not easy. One time a German bank may

no longer want to increase its commitment in a certain country, another time it is the French or the English side that applies the brakes.... Therefore, it would be good if something like an Export-Import Bank could be established at the European level.

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TRANSPORTATION

VOLVO TURNOVER UP THIRTY-NINE PERCENT IN 1982

Paris AUTO-INDUSTRIES in French 31 Mar 83 p 1

[Text] Goteborg, 30 Mar (AFP) -- The Swedish firm. Volvo had a sales volume of 75.624 billion kronor (same in francs) as compared to 54.407 the previous year, for a 39 percent increase, according to the company's annual report published on 30 March in Goteborg.

Foreign sales amounted to 62.403 billion and sales on the domestic market to 13.211 billion.

Profit before taxes and fiscal year allotments nearly doubled, going from 1.425 billion kronor last year to 2.440 billion kronor. After taxes (508 million as compared to 222 in 1981), profits amounted to 1.932 billion (1.203 in 1981). The general meeting, to be convened for 25 May, will consider a proposal to pay out a dividend of 10 kronor (9 in 1981).

The energy (oil) branch recorded the largest sales and the most spectacular growth, at 33.512 billion (19.503 in 1981, up 71 percent).

Automobile sales amounted to 18.109 billion (as compared to 13.569, +33 percent), sales of commercial vehicles were 14.024 billion (11.516, +22 percent), and truck sales were 10.793 billion (8.209, +31 percent). Bus sales, however, remained the same at 1.028 billion.

Airplane engine sales also increased considerably, with sales reaching 919 million (590 in 1981).

Industrial and fixed investments attained 2.260 billion, including 1.232 billion for the transport vehicles sector and [.] 846 for the energy sector. Investment in shares amounted to 1.624 billion. There were 75,136 total salaried employees at the end of 1982, a reduction of '949.

9805

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TRANSPORTATION

BRIEFS

FRG AUTO INDUSTRY RECOVERING--Frankfurt, 22 Mar (FRENCH NEWS AGENCY)--Signs of recovery in the FRG automobile industry, observed in January, were confirmed in February, according to statistics published on 22 March in Frankfurt by the automobile association (VDA). In rough figures, FRG automobile production decreased in February, totaling 338,000 vehicles (of which 313,100 were private cars), compared with 358,415 in January. But if we correct these figures in accordance with actual work days, more frequent in January, February was greater. In February 1982 /as published/, total of 367,400 vehicles left the FRG assembly lines. Exports rose to 191,900 automobiles, up from the January total (185,200) but lower than the total for February 1982 (196,900). Finally, according to the manufacturers, the FRG demand for private cars is on the upswing. The level of orders abroad is about the same as a year ago. /Text/ /Paris AUTO-INDUSTRIES in French 23 Mar 83 p 1/ 8568

BMW DEVELOPING NEW ENGINE--Munich, 30 Mar (FRENCH NEWS AGENCY)--BMW, the Bavarian automobile manufacturer, plans to put a new generation of more economical engines on the market, according to a statement made by Karlheinz Radermacher, one of its directors, on 29 March in Munich at a company seminar. BMW will profit by this occasion to launch a new model, the 525 E, equipped for the first time with this 2.7 liter six cylinder engine. This automobile, already available on the American and Japanese markets, will be offered for sale in Europe on 1 May. The 525 E is comparable to the 520 I which has 125 hp. According to the manufacturer, the 525 E is expected to consume an average of 8.3 liters per 100 km, compared with 9.1 liters for the 520 I. Radermacher said that, in the next few years, the new engine is expected to be used in the company's other models. It took more than 5 years to develop this engine. /Text/ /Paris AUTO-INDUSTRIES in French 30 Mar 83 p 2/ 8568

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